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THE JOURNAL

OF

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

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THE JOURNAL
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VOL. 33 OCTOBER, 1911 NUMBER 10

COMING MEETINGS

NEW YORK MEETING, OCTOBER 9

Attention is called to the change of date of the October meeting, which will be held on Monday evening, October 9, to permit the attendance of the members of the National Machine Tool Builders Association whose convention in New York opens on the following day and to whom a cordial invitation to be present has been sent. The meeting will have the following general program:

A paper will be presented by L. P. Alford, editor-in-chief of The American Machinist, and H. C. Farrell, mechanical engineer of the United Shoe Machinery Company, on Factory Construction and Arrangement with special reference to the construction, development and arrangement of the United Shoe Machinery Company's plant at Beverly, Mass. Discussion will be grouped under the following heads and illustrated by lantern slides in so far as possible.

a Machinery Arrangement, covering the different methods of arranging machinery for manufacturing, to be discussed by Alexander Taylor, manager of works, Westinghouse Electric & Manufacturing Company, East Pittsburg, Pa.; L. D. Burlingame, chief draftsman, Brown & Sharpe Manufacturing Company, Providence, R. I.; and Charles Day of Dodge, Day & Zimmerman, Philadelphia.

b Artificial Shop Lighting, dealing with the advantages and disadvantages of diffused illumination, and the best types of lamps versus the advantage of individual lights at each machine. This will be discussed by C. E. Clewell,

Westinghouse Electric & Manufacturing Company, East Pittsburg; G. H. Stickney, General Electric Company, Schenectady, N. Y.; and H. O. Stewart, Rochester Railway & Light Company, Rochester, N. Y.

c Factory Floors, giving the relative advantages and disadvantages of concrete floors, composition floors and wood floors, to be discussed by L. C. Wasson, Aberthaw Construction Company, Boston, Mass.; Henry Hess, president, Hess-Bright Manufacturing Company, Philadelphia; Gilbert Arnold, Stamford, Conn.; H. M. Lambourn, Yale & Towne Manufacturing Company, Stamford, Conn.

The subjects are live ones and a large attendance is expected. In addition to the discussors announced, all are invited to participate in the general discussion which will follow the formal presentation.

BOSTON MEETING, OCTOBER 18

A meeting of the Society with the Boston section of the American Institute of Electrical Engineers and the Boston Society of Civil Engineers, will be held in Chipman Hall, Tremont Temple, on October 18. The Boston Society of Civil Engineers will have charge of the meeting and a paper will be read on Power System, Pacific Mills, Method and Rule Form and Cost of Operation, by Fred A. Wallace, master mechanic of the Pacific Mills, Lawrence, Mass.

NEW HAVEN MEETING, NOVEMBER 15

A meeting of the Society will be held in New Haven on Wednesday, November 15, in the lecture room of the Mason Laboratory of Mechanical Engineering of the Sheffield Scientific School. Sessions will be arranged to occupy both afternoon and evening.

ANNUAL MEETING

Plans are already in progress for the Annual Meeting of the Society to be held on December 5–8, the entertainment and social features of which will again be in charge of the Committee on Meetings of the Society in New York. Edward Van Winkle has been appointed chairman of the general Committee on Entertainment, with subcommittees to be announced later, and Mrs. Jesse M. Smith will this year be in charge of the Ladies Committee which will as usual add much to the social side of the gathering.

CURRENT AFFAIRS OF THE SOCIETY

NOTABLE IMPROVEMENTS IN THE LIBRARY

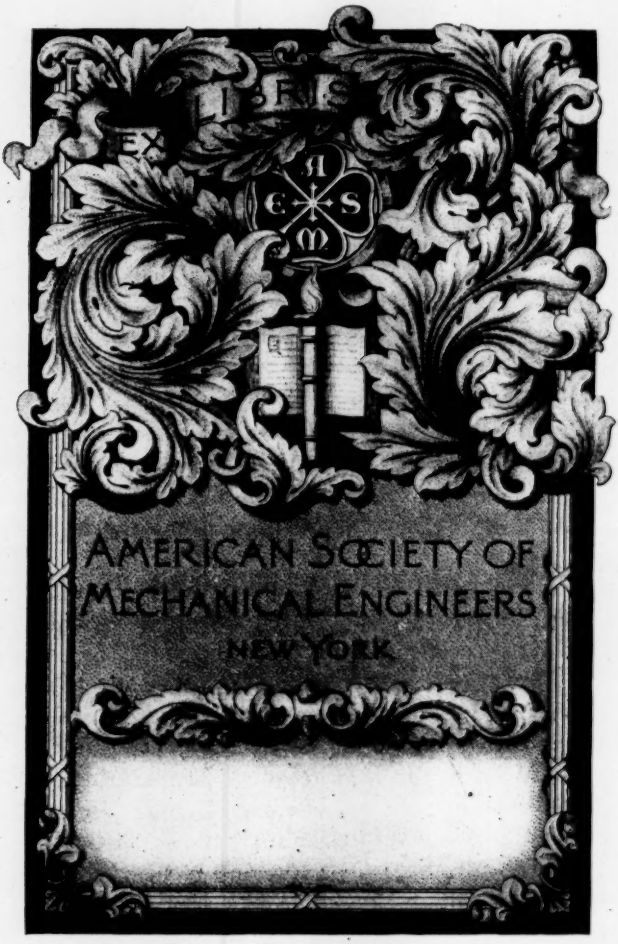
Some much needed improvements have been made in the library room of the Engineering Societies during the summer months by the Library Committee of the Founder Societies. Following out the original design of the architect, a second tier of stacks has been erected above the original tier, nearly doubling the capacity of the main room of the library. The framework and stairways are of steel construction and the flooring of glass to permit the passage of light.

The library now presents an appearance of even greater spaciousness than formerly and enjoys a collection and equipment in which the membership may well take pride. The new space provided is used largely for bound sets of periodicals, transactions, etc., formerly kept in the stack room on the floor below, so that they are now accessible for reference. The work was completed in time for the 21st annual convention of the New York Library Association, which opened in the Engineering Societies' Building on September 26, and which was attended by several hundred librarians from different parts of the country.

A mural painting, entitled "Engineering," by F. Dana Marsh, has also been placed in the large wall space at the rear of the library and greets the eye of the visitor as he enters the room. The painting was exhibited by Mr. Marsh at the Pennsylvania Academy last winter and has been placed by him in its present position, where it is hoped that it may remain through purchase by the societies or by individuals. The mural bears the inscription: "Engineering—the art of organizing and directing men and of controlling the forces and materials of nature for the benefit of the human race," Tredgold's famous definition of engineering. It shows against a background of great engineering works the mind and muscle which enter into their making. Various tools are in the foreground and silhouetted against the sky are steel structures in process of erection. Groups of men are at work, one of them swinging a crane into position for hoisting a dynamo. In the center is the engineer-in-chief, blueprint in hand, directing the work and bringing order out of chaos.

SOCIETY BOOKPLATE

A bookplate, a representation of which appears herewith, reproduced full size, has been adopted by the Library Committee and will be placed in those books in the Engineering Societies Library owned by the Society. This has been secured through the efforts of



Ambrose Swasey who was appointed several years ago to take up the question of a suitable design. It bears the seal of the Society above an open volume and also the words, Ex libris American Society of Mechanical Engineers.

PLANS FOR FINANCING LOCAL MEETINGS

At a special meeting of the Council held on September 15, a report of which will be found elsewhere, action was taken upon matters of unusual importance. One of these was the result of a direct canvass of the membership in New York as to the best method of raising funds for the conduct of meetings in New York, of other than a purely technical character, which are of course paid for out of Society funds. This has heretofore been done by individual subscriptions, but the plan has also been proposed and approved by many of increasing the dues of local members as is done by some societies. The Council, however, has outlined in a communication to the membership, published elsewhere, their desire to place the whole matter on a broader basis and to grant to local branches or professional sections generally the privilege of financing their activities. The matter is to be placed in the hands of a committee for formulation.

CHANGE IN PRICE OF THE JOURNAL

The other action taken by the Council is a reduction in the subscription price to The Journal, making the price to the public $3 a year and 35 cents a copy and $2 per year to members, 25 cents per copy, which is to be included in the dues as heretofore. The objects of a great engineering society should be large and were well expressed by the founders of this Society in its Constitution which states that "it is to promote the arts and sciences connected with engineering and mechanical construction." One of the ways in which this object can be attained is by distributing its literature as widely as possible for the benefit of the profession and to this end the subscription price of The Journal is made at the cost of production. At the rate of $3 per year it should be possible to secure among the engineering profession a much wider reading of The Journal and of papers presented to the Society, thus adding to the prestige of the Society and directly benefiting its members.

BROADENING OF THE SOCIETY'S ACTIVITIES

It is generally recognized that mechanical engineering is the foundation of engineering as a whole and that it is inclusive of many branches of engineering. This is indicated by a glance at The Journal of the Society for the past year in which will be noted papers upon a great diversity of subjects, extending over as wide a range as the following topics, taken at random: Milling Cutters, Manufac-

ture of Small Machine Parts, Cement Machinery, Steam Turbines, Purchase of Fuel, Farm Tractors, Building Materials and Fires, Handling Freight, Regulation of Hydraulic Turbines, Smoke Abatement, Molding Machines, Prevention of Accidents, Blast-Furnace Gas-Power Plants, Blowing Engines.

In recognition of this situation and with the desire that the Transactions of the Society shall fairly represent the whole field which it purports to, and shall contain authoritative papers on the many subjects considered, the Committee on Meetings have issued a circular to the membership outlining the plan for the formation of a large number of sub-committees of their committee. These are to represent the different branches of mechanical engineering and are to be composed of experts in those branches especially qualified to secure the best possible material for the meetings of the Society, who will also aid in bringing the Society and its work to the attention of related bodies in a way that has never before been possible.

It is essential that in inaugurating so important a policy the cooperation of the entire membership be secured and the members are, therefore, asked to fill in the blanks which have been sent them with suggestions of names of members for the various committees. It is not necessary that these names should be of members of the Society, inasmuch as it is desired, first of all, to secure the best possible selection of names without regard to relationship with the Society.

Three committees have already been formed and are doing excellent work. One upon the Cement Industry was formed last spring and held a most successful meeting at the spring convention at Pittsburgh, and also have plans under way for another meeting. A second committee on the Manufacture of Textiles are arranging for a session at the annual meeting. The third committee on Machine Shop Practice has made similar progress. The successful work of the Gas Power Section was evident at the Pittsburgh meeting, where the Gas Power session was largely attended.

LAND FUND

The responses to the circular of the Finance Committee, Messrs. R. M. Dixon and W. H. Marshall, have been gratifying. Of the $81,000 needed, certificates to the amount of $60,000 have been engaged and $40,000 actually paid in. There still, however, remains practically $20,000 to be secured and the membership is urged to call the matter to the attention of all who may be able to transfer invesments and so accomplish the purpose of the membership.

ADDED CONVENIENCES FOR MEMBERS

The attention of the members of the Society is called to the added facilities recently completed in the mezzanine lavatory located below the ground floor of the Engineering Societies' Building. Dressing booths have been installed with all the necessary fixtures for changing clothes for evening dress, thereby saving the cost of hotel expenses to members. The check room for coats, etc., is on the second floor and it is hoped that members will avail themselves of these conveniences. All members are entitled to use these without expense.

CALVIN W. RICE, *Secretary.*

REPORTS OF MEETINGS AND ANNOUNCEMENTS

ST. LOUIS MEETING, SEPTEMBER 20

The members of the Society participated in the first meeting for the season of the Engineers Club of St. Louis, together with other engineering societies located in that city. A paper on the Colorado Springs Water Works, illustrated by very fine lantern slides, was presented by Hiram Phillips, member of the Engineers Club and of the American Society of Civil Engineers.

SPECIAL MEETING OF THE COUNCIL

A special meeting of the Council was held on September 15, 1911, in the Society rooms, with President E. D. Meier in the chair. There were present Chas. Whiting Baker, R. M. Dixon, Stanley G. Flagg, H. L. Gantt, E. M. Herr, Alex. C. Humphreys, I. E. Moultrop, H. G. Stott, H. H. Vaughan, Wm. H. Wiley, and the Secretary. By invitation Walter Rautenstrauch, Chairman, F. A. Waldron, Secretary, and Edward Van Winkle, of the New York Committee on Meetings, were also present.

The President appointed H. L. Gantt and Wm. H. Wiley, tellers of election on the ballot cast for the admission of J. A. F. Aspinall to honorary membership and on their report Mr. Aspinall was declared elected.

The proposed amendment to C 57 of the Constitution was discussed. (See notice to the membership appearing on another page.)

The Executive Committee was appointed a special committee to advise with the Secretary in the preparation of a circular to be issued to the membership concerning this matter.

Voted: To rescind all previous action regarding the subscription price of The Journal and that the following action be taken:

Voted: In accordance with the suggestions of the Postoffice Department, that the subscription to The Journal be two dollars to members of the Society in all grades, to student members and affiliates of the Society paying dues, members of affiliated societies who do not pay dues, members of the three sister national engineering societies, libraries and colleges; to non-members not included in the above, three dollars.

Voted: To adopt the following amendment to By-Law 18, all requirements having been met:

The Council at any meeting may, in its discretion permanently remit the dues of any full Member of the Society who has been paying dues for thirty consecutive years or who shall have reached the age of seventy years after having paid dues for twenty-five consecutive years, provided that notice of such proposed action shall have been given at a previous meeting of the Council and the Committee on Membership shall have concurred in recommending that this action be taken. The Council may in its discretion, restore to membership any person dropped from the rolls for non-payment of dues, or otherwise, upon such terms and conditions as it may at the time deem best for the interests of the Society.

Voted: To confirm the appointment by the President of the following Committee to Formulate Standard Specifications for the Construction of Steam Boilers and other Pressure Vessels and for the Care of Same in Service: John A. Stevens, Chairman, E. F. Miller, C. L. Huston, H. C. Meinholtz, R. C. Carpenter, W. H. Boehm.

Voted: To confirm the formation of a Student Branch at Lehigh University.

Voted: To approve the design for a student members' pin, as submitted by the State University of Kentucky.

Voted: To confirm appointment of the following sub-committee on Machine Shop Practice of the Committee on Meetings:

F. E. Rogers, Chmn., L. D. Burlingame, W. L. Clark, W. A. Diefendorf, A. L. DeLeeuw, F. L. Eberhardt, F. A. Errington, A. A. Fuller, H. D. Gordon, H. K. Hathaway, E. J. Kearney, Wm. Lodge.

Voted: To confirm appointment of the following sub-committee on Cement Industry of the Committee on Meetings:

W. R. Dunn, Chmn., J. G. Berguist, W. F. Cowham, J. W. Fuller, Jr., L. L. Griffiths, E. M. Hagar, L. Lehigh Hunt, F. W. Kelley, Morris Kind, F. H. Lewis, R. K. Meade, Ejnar Posselt, H. J. Seaman, A. C. Tagge, H. Struckmann, P. H. Wilson.

Voted: That the Society officially participate in the 12th International Congress of Navigation to be held in Philadelphia, and that a committee be appointed by the chair to arrange the details.

Voted: To confirm the action of the Secretary in offering the use of the Society rooms to the American Society of Refrigerating Engineers for the reception of foreign delegates on the occasion of the international congress to be held in 1913.

Voted: That the Secretary reply to invitations received for the Spring Meeting of the Society, notably from Baltimore and the

Boston Chamber of Commerce, that same will be presented before the Spring Meeting in 1912, at which time the place for the next semi-annual meeting will be determined.

Voted: To confirm the appointment of Paul Doty and Max Toltz as Honorary Vice-Presidents to represent the Society at the inauguration of President Vincent of the University of Minnesota, on October 18.

Voted: To approve the appointment by the President of Louis Bendit, R. J. McCarty, F. L. Gilman, J. L. Harrington, J. H. Muhlfelt, as Honorary Vice-Presidents to the Third National Conservation Congress, to be held in Kansas City September 25–27, 1911.

The Secretary expressed the appreciation of Mrs. Chas. Wallace Hunt and her family for the bound memorial of Mr. Hunt, presented by the Council.

The following deaths were reported: A. E. Boehm, J. A. Caldwell, A. J. Hewlings, C. J. Larson, E. B. Yaryan, M. L. Abrahams, H. A. Fergusson, C. A. Hague, D. H. Haywood, C. S. Humphrey, Francis Schumann, D. G. Moore, Jas. Christie.

The following resignations were received and accepted with regret: H. B. P. Wicks, Dermot McEvoy, J. B. Spencer, C. E. Rommel, Mark Robinson, O. M. Stimson, William Hardie.

Voted: That the President be requested to send a special note of congratulation to Mr. A. M. Hunt, Chairman of the San Francisco Committee on Meetings, for the selection of subject of Oil Fuel and the able way in which it was handled, as reported in the August issue of The Journal.

Voted: To approve the minutes of the Council for May 30.

The Meeting adjourned.

AMENDMENT TO THE CONSTITUTION

At the Spring Meeting, the Committee on Meetings of the Society in New York, presented the following amendment to the Constitution:

Members of all grades residing in New York and vicinity, and represented by the Committee on Meetings in New York city, shall have the privilege and authority by majority vote of such membership, to increase their annual dues by the sum of $3.00, such increase to be applied to financing such entertainment features of the Annual Meetings in New York city and its own local meetings, as their Committee on Meetings in New York city may elect.

The following comment has been made by the Committee on Meetings in New York:

In justification of this amendment let it be understood that the members residing in New York City have always paid for the entertainments given in connection with the Annual Meetings of the Society. Their committee appointed to provide such entertainment has had to assume the obligations incurred thereby and beg among the members for subscriptions to meet the bills. This has resulted in the burden coming heavily on some and being shifted by others. A canvass of the New York membership relating to this method of raising the funds has shown it to be very unpopular. In fact 82 per cent of the replies received from this canvass favored the plan of a $3 annual assessment for all New York members. This amendment, therefore, is intended to give the Committee on Meetings in New York City the proper authority to collect the sum which the New York membership by majority vote decides each member should contribute. The adoption of this amendment will result in placing the entertainment program of the Annual Meeting on a sure and stable financial footing.

COMMENT OF THE COUNCIL

Under C 57 of the Constitution the Council, if it so elects, may comment upon notices of amendment to the Constitution, at the time the notice is sent to the membership and at a special meeting for that purpose the Council on September 15, passed the following resolution:

Voted: That in the opinion of the Council an amendment to the Constitution which makes possible a compulsory assessment for the purpose of entertainment, is undesirable. They consider that the suggested amendment of the New York members requires careful consideration with a view to developing a suitable plan for the purpose of financing geographic or professional section meetings.

Voted: That a Committee be appointed by the President to prepare plans for the proper organization and financing of local branches or professional sections of the Society, with instructions to prepare such an amendment to the proposed amendment of the Committee on Meetings in New York as will make it generally applicable to all members and conform to a definite scheme which is to be submitted to the Council previous to the annual meeting.

In the opinion of the Council, the Constitution should govern the Society generally rather than provide for special conditions. To that end, the Council trusts the proposed amendment will be so revised at the coming Annual Meeting, as to provide that the members, meeting in a given locality, have authority to make assessments for such Society purposes as these members may desire.

TRANSACTIONS, VOLUME 32

In connection with the issuance of Transactions, Volume 32, covering the year 1910, attention is called to the following matter which has never been published in The Journal:

SYMPOSIUM ON RAILWAY ELECTRIFICATION
- Electrification of Suburban Railways, F. W. Carter
- Cost of Electrically-Propelled Suburban Trains, H. M. Hobart
- Discussion on Railway Electrification

SYMPOSIUM ON LOCOMOTIVE HANDLING AT TERMINALS
- English Running-Shed Practice, Cecil W. Paget
- Discussion on Locomotive Handling at Terminals

SYMPOSIUM ON HIGH-SPEED TOOLS
- High-Speed Tools and Machines to Fit Them, H. I. Brackenbury
- Topical Discussion of High-Speed Tools
  - Rapid Production in Machine Work, John Calder
  - Data on Manufacturing Methods with Machine Tools, L. D. Burlingame
  - Development of High-Speed Milling Machines, L. P. Alford
- Discussion on High-Speed Tools

SYMPOSIUM ON GEARING
- Tooth Gearing, J. D. Stevens
- Closures by Wilfred Lewis and J. D. Stevens

DISCUSSIONS
- The Transmission of Heat in Surface Condensation, George A. Orrok
- Combustion and Boiler Efficiency, Edw. A. Uehling
- Operating Conditions of Passenger Elevators, R. P. Bolton
- First Large Gas-Engine Installation in American Steel Works, E. P. Coleman
- Symposium on Grinding
  - The Field for Grinding, C. H. Norton
  - Precision Grinding, W. A. Viall
  - Modern Grinding Methods, B. M. W. Hanson
- Steam Turbine Tests
  - Test of a 10,000-Kw. Steam Turbine, S. L. Naphtaly
  - Test of a 9,000-Kw. Turbo-Generator Set, F. H. Varney

NECROLOGY

WILLIAM LESTER CANNIFF

William Lester Canniff was born in Berea, Ohio, on May 23, 1862, and received his education in the public schools, acquiring his mechanical training through his own efforts and through experience. After obtaining a general knowledge as a machinist, electrician and stationary engineer, he decided upon tunnel work as his specialty and in 1896 entered the employ of the W. J. Gawne Company of Cleveland, contractors for the water works tunnel then in process of construction in that city, as master mechanic, and also assisted in the work of the second tunnel built shortly after the completion of the first. In 1900 he superintended the construction of the water works tunnel in Cincinnati, built by the same company, and had complete charge of the mechanical work. In 1905 he was employed by the Degnon Contracting Company of New York as mechanical superintendent on the Belmont tunnel under the East River, and in 1907 by the United Engineering and Contracting Company on the construction of the Pennsylvania tunnel, New York City. At the time of his death on August 29 he was serving the T. A. Gillespie Company of High Falls, N. Y., in the same capacity, being engaged on the Rondount siphon tunnel of the New York City aqueduct. During the three years of his work for this company he designed and erected the largest compressed air plant ever built under one roof in this country. Although Mr. Canniff invented a number of appliances he patented only two, the Union hose and pipe coupling, and a pneumatic grout mixer extensively used through the country, on the subject of which he was a recognized authority.

OLIN AMES STRANAHAN

Olin Ames Stranahan who was born in Litchfield, Ohio, on July 18, 1866, died in New York City on September 6, 1911. Mr. Stranahan received his education at the Case School of Applied Science in Cleveland and at Cornell University, from which he was graduated in 1890. Upon graduation he entered the employ of Westinghouse, Church, Kerr & Company at Chicago, working up through their

various departments to the position of chief engineer of their Chicago office. When the British Westinghouse Electric and Manufacturing Company, Ltd., was formed in 1900, Mr. Stranahan was placed in charge of their engine business, resigning in 1905 to accept the position of manager of the power department of the Allis-Chalmers Company, Milwaukee, Wis., shortly afterward becoming general sales manager. In 1907 he joined the Westinghouse Machine Company with headquarters in New York, having charge of gas engine sales and special power installation, and two years later took over the charge of the export machinery department of the John Deere Export Company of New York. At the time of his death he was general manager of the General Reduction, Gas and By-Products Company of the same city.

Mr. Stranahan specialized during most of his professional life in gas engines and was the owner of several valuable patents applying to gas engines and producers, and had a wide acquaintance in his own country and abroad. He was a member of the Western Society of Engineers, the Engineers Club of New York, and the Engineers Technical and Chicago Athletic Clubs of Chicago.

JAMES CHRISTIE

James Christie was born near Ottawa, Canada, on August 28, 1840, and was of Scotch parentage. At the age of sixteen after a common school education, he came to the United States and under the guardianship of his uncle, one of the pioneer railroad constructors in this country, was employed with a railroad construction corps. In 1856 he served as an apprentice in the machine shop of locomotive works in Detroit, Michigan, and spent one year in Missouri as an assistant to engineers and contractors on the Pacific Railroad of Missouri. From there he went to Philadelphia, apprenticing himself to the I. P. Morris Company, proprietors of the Port Richmond Iron Works, where he learned the trade of a machinist. In 1865 he removed to Pittsburg as superintendent and engineer of the Fulton Foundry, and later engaged in the designing and construction of iron works. In Phillipsburg, N. J., his next location, he devoted himself, as superintendent of the Phillipsburg Manufacturing Company, to the construction of iron bridges. In 1876 he became construction engineer with the Pencoyd Iron Works of A. and P. Roberts & Company, where he continued until after the works had been absorbed by the American Bridge Company. Here he did his

most important engineering work. As general mechanical assistant and to a great extent his own draftsman, he began at once to improve the methods of work, introducing machinery and organizing the men employed, as a result making the works one of the largest and most efficient in the Eastern part of the country. Upon his retirement from the company he established a consulting practice of his own.

In 1884 Mr. Christie published Experiments on the Strength of Wrought Iron Struts, based on his tests at Pencoyd, which won for him the Norman medal given by the American Society of Civil Engineers, and made at other times numerous contributions to general and scientific literature. During the Civil War he served in the Antietam campaign and in 1863 entered the engineer corps. He was through- out his life interested in public affairs and held several political offices, serving as Mayor of Phillipsburg in 1870.

He joined the Society in 1885 and was one of its Vice-Presidents from 1902 to 1904. At the time of his death on August 24, 1911, he was serving his second term as President of the Engineers Club of Philadelphia, and was also a member of the Franklin Institute, the American Philosophical Society, the American Society of Civil Engineers, and Fellow of the American Association for the Advancement of Science.

CHAS. ARTHUR HAGUE

Chas. Arthur Hague was born at Newton, Mass., October 9, 1849, and died June 26, 1911. He began his professional career in 1872 as a draftsman and designer with the Clapp and Jones Manufacturing Company, Hudson, N. Y., remaining in their employ until 1875 when he became mechanical engineer and draftsman on steam engines, boilers, etc., for the Frank Douglas Machinery Company, of Chicago. In the following year he resigned to enter the employ of the Furst & Bradley Manufacturing Company as a master mechanic. While there he patented important improvements in the plows and other implements manufactured by them and designed and constructed numerous special machines adapted to their line. In 1884 he became superintendent of the E. P. Allis Company of Milwaukee and three years later became connected with the Knowles Steam Pump Company of New York. The following year he entered the employ of H. R. Worthington, New York, as mechanical engineer, remaining there until 1895 when he established a consulting practice of his own. Mr. Hague was the author of a book on Pumping Engines for Water Works.

LEMUEL R. HOPTON

Lemuel R. Hopton was born at West Stratford, Conn., on June 20, 1873, and received his early education in the public and high schools of New Haven and his technical training in the Sheffield Scientific School of Yale University, from which he was graduated with honors in 1896. Until 1900 he remained at Yale, teaching machine design in the department of Mechanical Engineering at Sheffield Scientific School, when he left there to enter the employ of Carl H. Schultz, Inc., New York, as factory superintendent. In 1902 he resigned to take a similar position with the Enos Company of the same city, remaining with them until a short time before his death on September 5, 1911.

Mr. Hopton was the inventor of several electrical appliances used by the Enos Company, and also of the Opalux glass, used for high candle power lighting and manufactured by the Opalux Company, of which he was an officer and director. He was the author of many articles published in the electrical magazines and a member of the Illuminating Engineering Society, before which a number of his papers were presented.

JAMES McLAUGHLIN

James McLaughlin who died on August 18 at Clifton Springs, N. Y., was born on May 8, 1867 at Castlefin, County Donegal, Ireland, coming to the United States with his parents at the age of fifteen. Here he entered the Philadelphia High School and later the University of Pennsylvania, where he received his training as a civil engineer. In 1885 he entered the employ of the Philadelphia & Reading Railway, as secretary to the general counsel, and two years later became bookkeeper and correspondent for the Philadelphia Engineering Works. Shortly afterward he decided to take up the practical and technical side of mechanical engineering and entered the shop of the company, also taking a course of lectures on mechanics at the University of Pennsylvania. In 1889 he became general manager of the Barr Pumping Engine Company of Philadelphia, and designed and installed many large high-duty pumping engines, principally in New England but also in Kansas City, Harrisburg, Trenton, Denver and other cities.

In 1903 he resigned to establish the firm of McLaughlin Brothers, Incorporated, for the design, construction and equipment of buildings, including reinforced concrete, steel and New England mill construction, power plants and electrical equipment, and plumbing and sprink-

ling systems. In the following year the main offices were removed from Philadelphia to Baltimore and many of the large buildings of Baltimore were erected under Mr. McLaughlin's supervision. He was at the time of his death president and general manager as well as senior member of the firm.

MRS. ROBERT HENRY THURSTON

Announcement is made of the death of Mrs. Thurston, widow of Robert Henry Thurston, first President of the Society, at her home in Brooklyn, N. Y., on September 7, 1911.